



**MCI Communications  
Corporation**

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Washington, DC 20006

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**JUN 27 1996**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

June 27, 1996

Mr. William F. Caton  
Secretary  
Federal Communications Commission  
Room 222  
1919 M Street NW  
Washington, DC 20554

Re: CC Docket 96-45; Universal Service

Dear Mr. Caton:

Today, MCI sent copies of the attached paper to the members of the Federal-State Joint Board on Universal Service. Please include the enclosed copies of the paper on the record of this proceeding.

Sincerely,

Mark Mandell  
Senior Policy Advisor, MCI

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**MCI Communications  
Corporation**

1801 Pennsylvania Avenue, NW  
Washington, DC 20006

June 27, 1996

The Honorable Reed E. Hundt, Chairman  
Federal Communications Commission  
1919 M Street, N.W., -- Room 814  
Washington, DC 20554

Dear Chairman Hundt:

I am pleased to provide to you MCI's proposal for how the Universal Service Fund should be structured to enhance and improve education in America. We at MCI believe whole-heartedly that when technology is properly integrated into the nation's schools and libraries, American students can reach ever-higher levels of achievement. Today, one key to providing students with the opportunity to excel is fast access to the Internet.

Proper implementation of Section 254(h) of the Telecommunications Act will greatly accelerate the process of connecting all our nation's schools and libraries to the Internet. Revolutionizing the educational system will require a genuine partnership between the public and private sectors. To that end, MCI's proposal calls for:

- All telecommunications companies to provide schools and libraries Internet links at direct economic cost.
- Tiered, below-cost discounts for small, remote areas, and low-income neighborhood schools.
- Targeted discounts for fast Internet connections to encourage high-bandwidth connectivity.

The Honorable Reed E. Hundt

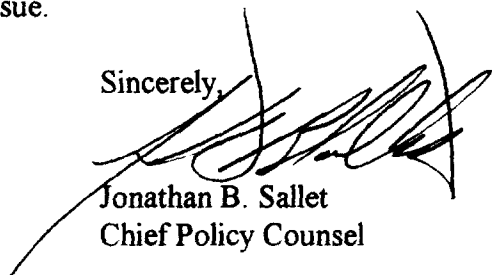
June 27, 1996

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- Schools and libraries to be encouraged or required to develop plans for the funding and effective use of all the necessary infrastructure elements that need to be integrated into the classroom, including internal network connections, hardware and software needs, teacher training, and ongoing support services.
- Competition among service providers.

We would be pleased to discuss in greater detail any or all portions of our proposal and look forward to your continued attention to this issue.

Sincerely,



Jonathan B. Sallet  
Chief Policy Counsel

Attachment

## **Connecting Students and Teachers to the Information Superhighway A Summary of MCI's Proposal**

### **-- Provide Internet Access at or Below Cost**

The FCC should require service providers to charge a school or library the economic cost for Internet connections. One method of calculating the economic cost of such services is the total service long-run incremental cost, or TSLRIC.

### **-- Focus Discounts on Low-Income Schools (Tiered Discounts)**

The FCC should establish a set of tiered discounts targeted to bring special telecommunications services within reach of schools and libraries in low-income areas. Such discounts will ensure that school children and library users are not divided into information "haves" and "have nots." Today, schools in low-income neighborhoods are half as likely to have access to the Internet as those in wealthy areas.

### **-- Target Discounts on High-Bandwidth Services (Targeted Discounts)**

Schools and libraries should have the option of dial-up access over regular phone lines, which offers an affordable and easy connection to the Internet. Without high-bandwidth connectivity, however, the Act's goals -- enhancing education through technology -- cannot become a reality. The FCC should establish targeted discounts to make high-bandwidth (1.5 megabytes per second and above) connections to the Internet affordable. Fewer than 5 percent of schools currently can access the Internet at such speeds.

### **-- Determine the Total Cost of Connecting Schools to The Information Superhighway**

After establishing tiered discounts, targeted discounts and TSLRIC as the rate ceiling, the FCC should determine the amount required to meet the Act's goals. Financial support for connections to the Internet below economic cost should be recovered from all telecommunications companies based on their relative revenues net of payment for services to other telecommunications companies.

### **-- Require Schools to Have a State-Approved Plan**

The FCC should require schools and libraries to submit plans to a state agency detailing how they will use discounted telecommunications services to enhance education and, equally important, how they will finance other necessary infrastructure elements, such as inside wiring, computers, software and teacher training. The commission should require state approval of these plans before allowing discounts.

### **-- Promote Competition Among Service Providers**

The commission should adopt a system of "virtual discounts" ensuring that the universal service fund acts as a catalyst to the market whenever possible. Virtual discounts would allow a school to choose which service and service provider it desired and promote competition for bids among potential service providers. The virtual discount would be the combination of a school's tiered discount and its targeted discounts.

### **-- Monitor and Review Progress**

The Telecommunications Act of 1996 requires the FCC to analyze data collected by the National Center for Educational Statistics once a year and produce a report on the number of schools and libraries connected, the types of connections and services used, and the number of students served. The data should be presented by school category (elementary, secondary, other), school location (city, suburban, town, rural) and geographic region (Northeast, Southeast, Central, West), and enrollment size.

To address issues outside the scope of the Act's universal service provisions -- inside wiring, hardware and software, teacher training, and ongoing support -- the FCC should establish an Education Technology Council composed of representatives from each of the stakeholder groups -- federal and state officials, industry representatives, educators, parents and students. Members of the council would be appointed by the commission.

The council's primary objective would be to establish a comprehensive "shared national vision" for how education can be enhanced by the Internet. The council would not be a regulatory body nor could it be charged with determining subsidy flows under Section 254.

6/27/96

## **CONNECTING STUDENTS AND TEACHERS TO THE INTERNET: AN MCI PROPOSAL**

### **I. Bringing the Internet to the Nation's Schools and Libraries**

The Telecommunications Act of 1996, if properly implemented, will open local telephone markets to competition for the first time. Vibrant competition in local telephone markets will reduce costs while increasing the quality, choice and convenience of telecommunications services for all consumers, including schools and libraries.

The experience of the long-distance industry over the last decade clearly illustrates the tangible benefits competition brings consumers. In the decade following the breakup of the U.S. telecommunications monopoly, competition in long distance produced lower costs, enhanced choice, higher quality and dramatic innovation. Since 1984, for example, the cost of long-distance calls has decreased by nearly 70 percent.

The first strategy to ensure that the information revolution reaches schools and libraries, therefore, is vibrant competition. The implementation of the Telecommunications Act is unlikely to bring the information superhighway immediately to all schools and libraries. The Act's universal service provisions, however, empower the Federal Communications Commission and the states to address the issue of connectivity for schools and libraries to ensure that the job gets done. The FCC can establish a competitively neutral Universal Service Fund to enhance competition and support the real -- not inflated -- costs of service provision in our nation's low-income and high-cost areas. Forward-looking actions by the FCC can go a long way to making high-bandwidth connectivity to every school and library a reality.

Even so, one should not expect that the provisions of the new Telecommunications Act -- which cover connectivity to schools and libraries -- nor technology itself is enough to improve American students' educational environment. We also will need to attend to all the ingredients necessary to introduce educational technologies into classrooms and libraries, including internal networks, hardware and software, teacher training and ongoing support.

Financial and strategic leadership for this effort must come from every level of government and from all segments of each community. No single entity can possibly provide all the resources or expertise required to meet this challenge. Parents, teachers and students must spearhead efforts at the local level. They will be joined by community leaders, state and federal officials, and business and industry leaders.

Changing our educational system will require a genuine partnership between the public and private sectors.

## II. Enhancing Education Through the Universal Service Fund: A Proposal

Integrating state-of-the-art information technology into our nation's schools and libraries is key to our children's future. When technology is properly introduced into the schoolroom or library, American students reach ever-higher levels of achievement. A 1995 review of more than 130 studies, for example, found that when schools use technology to support instruction, students show marked improvement in language arts, math, social studies and science.<sup>1</sup>

Today, providing our students with the opportunity to excel means connecting them to the Internet. MCI has been playing a major role in this effort. MCI Chairman and CEO Bert Roberts, for example, served on the National Information Infrastructure Advisory Council, which began the "Kickstart" process to stimulate local community interest and issued a series of policy proposals last January.

MCI also played a major role in organizing Netday96, a day-long project held last March to wire California schools to the Internet. It sponsors CyberEd, a "cyber" classroom on wheels designed to bring hands-on technology training to teachers and community leaders in rural and urban Empowerment Zones. It collaborated with Cisco Systems Inc. and the Global SchoolNet Foundation to create the first International Schools Cyberfair. And it established LibraryLINK, a partnership with the American Library Association to bring the Internet to libraries.

Based on these and other experiences, MCI offers the following seven-point proposal to achieve the goal of providing Internet access to our nation's schools and libraries.

### 1. Provide Internet Access At or Below Cost

The intention of the Universal Service provisions of the Act are "to ensure affordable access" to telecommunications services for all Americans.<sup>2</sup> Without a doubt, local competition will make many basic telecommunications services affordable for all consumers, including many schools and libraries. To accelerate the process of bringing the benefits of competition -- lower prices, greater choices and higher quality -- to our nation's schools and libraries, the FCC should require all telecommunications companies to charge schools and libraries no more than the direct economic cost or competitive cost of providing that service. Accordingly, the Universal Service Fund should only be used to make up the difference between any discount that a school or library receives and the actual cost of providing that service.

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<sup>1</sup> U.S. Advisory Council on the National Information Infrastructure, Kickstart Initiative: Connecting America's Communities to the Internet, January 1996, p. 11.

<sup>2</sup> House of Representatives 04-458, 104th Congress 2nd Session, at 20 (Jan 31, 1996) ("Conference Report")

This is an issue because the Act's guiding language does not make clear what the initial rate -- that is the non-discounted rate -- charged to schools and libraries should be. Instead, it only directs telecommunications companies to provide services "to elementary schools, secondary schools and libraries for educational purposes at rates less than the amounts charged for similar services to other parties."<sup>3</sup> If the goal of this section of the Act is to enhance education by connecting schools and libraries to the Internet, then no school or library should be charged more than the actual economic cost of those connections. Likewise, the sum of the amount a school or library pays for a service and the Universal Service Fund subsidy for that service should not be greater than the economic cost of the service.

Unless and until real competition reaches all parts of the country -- or without strong and clear guidance from the FCC and states -- a telecommunications provider operating in a market with no real competition could charge a rate above its true economic cost. If this were the case, the total of the purchase price paid by a school or library added to the Universal Service Fund subsidy would be encouraging network inefficiencies or improperly boosting revenues rather than, as the Act intended, strictly paying for connectivity. For example, if a service provider was able to charge an uncontested rate for a T-1 of \$800 per month rather than the actual economic cost of \$500, some combination of the purchaser (school or library) and long-distance customers (through the Universal Service Fund) would be "paying" \$300 more than is actually warranted. This practice should not be allowed.

Consequently, the FCC should require that the actual economic cost of telecommunications services be the maximum rate charged by a telecommunications provider to any school or library before any discount is applied.

The best way to gauge the actual cost of such services is the total service long-run incremental cost, or TSLRIC. The FCC should deduct all discounts from the TSLRIC for the chosen service. In that way, libraries and long-distance customers would not be forced to subsidize excessive profits or reward network inefficiencies. This is especially critical in the areas of the country where for the time being there will be only one service provider, which, in the absence of a price ceiling, might otherwise be permitted to charge schools and taxpayers an excessive, monopoly price.

## 2. Provide Discounts for Low-Income and Rural Schools

Introducing real competition to local markets is the first and most important way to reduce costs, but, as the Act recognized, the benefits of the Act may not reach all schools and libraries immediately.

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<sup>3</sup> Id.



School size, budgets and location now determine the ability of a particular school to connect to the Internet. According to the U.S. Department of Education, about half of U.S. public schools have access to the Internet. Yet only 31 percent of schools with large proportions of students from poor families have access to the Internet compared with 62 percent of schools with relatively few students from poor families. In addition, only 39 percent of schools with fewer than 300 students are connected to the Internet, compared with 69 percent of schools with more than 1,000 students.<sup>4</sup>

To ensure that school children and library users are not divided into information "haves" and "have nots," the FCC should target assistance to low-income, remote, and small schools and libraries. This could be achieved with tiered discounts.

There are many ways that tiered discounts could be structured. For example, discounts could be provided on a sliding scale in proportion to the percentage of students from poor families as defined by the Department of Education. That is, schools with at least 71 percent of students who are eligible for free or reduced-price lunches might receive a 75 percent discount for all advanced telecommunications services, while schools with 31 percent to 70 percent of these children might receive a 50 percent discount, schools with 11 percent to 30 percent might receive a 25 percent discount, and schools with fewer than 11 percent might receive a 10 percent discount. Discounts could also be structured to enable smaller schools and schools in high-cost areas to purchase advanced telecommunications services as well.

The FCC, working in cooperation with educators, state and local governments, and other interested parties, should devise such a set of tiered discounts to address the ability (or inability) of schools and libraries to acquire advanced telecommunications services. The exact size of the tiered discounts would be determined by the FCC in cooperation with the Federal-State Joint Board on Universal Service.

### 3. Target Discounts for High-Bandwidth Services

High quality, quick access to the Internet is key to realizing the full potential of technology in the classroom. To ensure such access, the FCC should provide incentives to make high-bandwidth connections to the Internet universally available. Such an effort would be in keeping with the goals and vision set forth in the Act. As stated in the Conference Report accompanying the Act:

"The provisions of subsection (h) [universal service for schools and libraries] will open new worlds of knowledge, learning and education to all Americans -- rich and poor, rural and urban.... [They will] provide the ability to browse library

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<sup>4</sup> *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools*, United States Department of Education, National Center for Education Statistics, 1995.

collections, review the collections of museums, or find new information on the treatment of an illness, to Americans everywhere via schools and libraries.”<sup>5</sup>

Many educators have mentioned the importance of adequate external connections to the Internet. For example, more than 20 school and library organizations commented in a recent filing with the FCC

“Schools face a problem familiar to anyone who has conducted on-line research from a home computer.... [I]t takes approximately 2.3 minutes to download a 2mb image over a typical residential 14.4 kbps line. A more complex image requiring 16mb would take 18.5 minutes, and a short video clip could take 1.4 hours. These are clearly not useful speeds. Even over a 56 kbps line, a simple image takes 35.7 seconds. Few people -- and children least of all -- have the patience to sit in front of a computer terminal waiting for images to appear at such slow speeds.”<sup>6</sup>

High-bandwidth connections should be defined as connections to the Internet at rates greater than or equal to 1.5 mbs. Today, fewer than 5 percent of schools are able to access the Internet at such rates.<sup>7</sup>

It is clear that the authors of the Act had high-bandwidth connectivity in mind when they devised this section. Although they left the process for defining special services up to the FCC, they provided clear guidance:

“[T]elecommunications and information services that constitute universal service for classrooms and libraries [as defined by the FCC could] include dedicated data links and the ability to obtain access to educational materials, research information, statistics, information on government services, reports developed by federal, state, and local government, and information services which can be carried over the Internet.”<sup>8</sup>

Dial-up access may provide affordable and easy access to the Internet today, and schools and libraries should be provided with this option at the actual economic cost. It is important, however, that the FCC and states do all they can to put advanced services -- high-bandwidth connectivity -- within reach of all our schools and libraries through a set

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<sup>5</sup> Conference Report, at 132.

<sup>6</sup> See Joint Comments of National Schools Boards Association, American Libraries Association, et. al., CC Docket No. 96-45, at 7 (filed April 10, 1996).

<sup>7</sup> *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools*, United States Department of Education, National Center for Education Statistics, 1995.

<sup>8</sup> Conference Report, at 133.

of targeted discounts for advanced services.

Targeted discounts would spur the growth of advanced telecommunications infrastructures, including optical fiber and other state-of-the-art services, enhancing the ability of schools and libraries to provide better educational applications.

Hypothetically, the FCC could decide that 20 percent should be discounted from the actual economic cost of a high-speed Internet connection. Then, if a T-1 cost \$500 per month, any school purchasing a T-1 would receive an initial 20 percent discount, or \$100 dollars off the service. The school would then apply its tiered discount rate to this price. That is, if a particular school's tiered discount was 75 percent, the total cost to the school would be \$100 per month.<sup>9</sup>

The FCC's definition of advanced services also must be flexible enough to include current services and leave room for satellite, cable, wireless and other delivery mechanisms.

#### 4. Determine the Total Connection Cost

After establishing tiered discounts, targeted discounts and TSLRIC as the rate ceiling, the FCC and Joint Board should then determine the total amount required to meet the Act's goals. When estimating this cost, the FCC and Joint Board should take into consideration the impact of technological advances. Furthermore, the FCC should recover financial support for Internet connections below economic cost from all telecommunications companies based on their relative revenues net of payment for services to other telecommunications companies.

Once the amount is properly "sized," it must be considered in relation to the total amount needed by the Universal Service Fund, which, in turn, must be established to pay the economic costs of Universal Service. This is a very important step. Unless the underlying Universal Service Fund is established by creating a competitively neutral fund, the benefit of competition will be deferred and the cost of the subsidy for schools and libraries increased.<sup>10</sup> The implementation of subsection (h) must rest upon an economically justifiable and fully competitive foundation.

#### 5. Require Schools to Have a State-Approved Plan

Each community and school will have to develop a comprehensive plan for investing in educational technologies and effectively integrating them into the classroom.

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<sup>9</sup> This example is for illustrative purposes only. The exact size of the targeted discount for advanced services would be determined by the FCC and the Joint Board.

<sup>10</sup> See MCI Comments, CC Docket No. 96-45, at 2-7 (filed April 12, 1996).

It is not enough simply to wire a school, install a computer lab, or excite the imagination of a teacher. To do the job right requires:

- External connections that link schools with other schools and to the outside world,
- Internal connections within each school,
- Computers and associated hardware,
- Software and informational materials that are integrated into the curriculum,
- Teachers who are prepared to use technology effectively and,
- Ongoing operational resources.

The importance of proper planning for each infrastructure element cannot be overemphasized. The United States has a long history of attempting to reform education with technology, including the introduction of radio, motion pictures and television into the classroom. Most of these efforts failed due to poor planning and coordination.<sup>11</sup>

According to a 1995 RAND study, “[S]ome sense of strategy is needed to overcome the problems seen in past efforts to promote the use of technology and reform in the nation’s schools. All too frequently, past efforts floundered because implementation was flawed, communities and teachers were not adequately involved, or inadequate resources were devoted to the task. If technology-rich learning environments are to be created in many schools, [all stakeholders] will need to attend to these lessons and avoid standardized implementation of prepackaged technical solutions.”<sup>12</sup>

For these reasons, the FCC should consider whether to encourage or require schools and libraries to develop a plan and submit it to a state agency for approval before receiving a discount under the Act’s universal service provisions. These plans could detail how the discounted telecommunications services will be used to enhance education and, equally important, how the school or library intends to obtain funding for each of the other necessary infrastructure elements not covered by the Act, such as inside wiring, computers, software and teacher training. The FCC would inform schools and libraries about the tiered discount rate, the TSLRIC for each telecommunications service, and the associated targeted discount before they formulated their plans.

## 6. Promote Competition Among Service Providers

Once a school’s (or library’s) plan has been approved by the state, it should be able to solicit the best price possible for the desired telecommunications service. To this end, the FCC should ensure that the universal service fund acts as a catalyst to the market wherever possible. This could be achieved through “virtual discounts” that would allow a

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<sup>11</sup> *Fostering the Use of Educational Technology: Elements of a National Strategy*, Glennan, Thomas K, and Melmud, Arthur, RAND, 1995. Chapter 2.

<sup>12</sup> *Id.*

school to choose which service and service provider it desired, and, as such would promote competition for bids among potential service providers. The virtual discount would be the combination of a school's tiered discount and targeted discount. The school would get the best deal possible, and the size of the universal service subsidy would be as efficient as possible.

## 7. Monitor and Review Progress

It is critical that the FCC carefully monitor and evaluate the funding and support mechanism it adopts for connecting students to the Internet. As technologies change, competition takes hold in local markets, and schools begin to come on line, it will be important for the FCC to adapt its policies to students' needs and the realities of the marketplace.

The FCC, as required under Section 706 of the Act, should collect and analyze data once a year and publish a comprehensive report on the number of schools and libraries connected, the types of connections and services used, and the number of students served. The data set forth by school category (elementary, secondary, other), location (city, suburban, town, rural), region (Northeast, Southeast, Central, West), and enrollment size. The commission should gather similar data for libraries. Additionally, the commission should use this data to evaluate the efficacy of its strategy to connect schools and libraries to the Internet, and promote new policies and/or procedures accordingly.

To account for the various issues that fall outside of the Act, the President should establish an Education Technology Council, similar to that proposed by the Aspen Institute.<sup>13</sup> This council would work with state and local officials and other stakeholders to promote strategies for integrating technology into our nation's elementary and secondary schools and libraries.

The council would be composed of representatives from each stakeholder group: federal and state officials, representatives from industry (including telecommunications and computer hardware and software firms), educators, parents and students, who would be appointed by the commission. All of the council's recommendations would be forwarded to relevant federal, state, and local governmental agencies, including the FCC for consideration.

The council's primary objective would be to establish a comprehensive "shared national vision" for the manner in which education can be enhanced by the Internet. This vision should emphasize the importance of paying appropriate attention to the multitude of infrastructure elements -- connections to a school, connections within a school, hardware,

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<sup>13</sup> *The Communications Evolution: Federal, State and Local Relations in Telecommunications Competition*, The Aspen Institute, 1995, pp. 35-49.

content, professional development and ongoing support -- necessary for improving education. Telecommunications services must be coupled, integrated and leveraged with the other infrastructure elements. The council would not, however, be a regulatory body nor could it be charged with determining subsidy flows under Section 254.

The council also could serve as a clearinghouse for information on federal, state and local efforts to bring our schools and libraries on line. It could develop and promote strategies for coordinating the Act's universal service provisions with other public and private educational technology initiatives, such as Netday, the Clinton administration's educational technologies initiatives (i.e., the Technology Literacy Challenge Fund, 21st Century Teachers program, Technology Learning Challenge grants) as well as the numerous private sector, foundation and local efforts.

### III. Conclusion

The time to prepare America's students for the future is now. This proposal is designed to accelerate the process of enhancing education by making it possible for all schools and libraries in the nation to connect to the Internet.

To do this job right we must: provide incentives enabling educators to unleash the power of the Internet in the classroom; focus attention and resources on the most disadvantaged areas of the country; and decentralize the planning and decision-making process to empower local communities.

High-bandwidth connectivity to the Internet is an essential element of any plan, but it is not the only one. Just as critical are connections within schools and libraries, adequate hardware and software, teacher training, and ongoing support. That is why the Universal Service Fund will, by necessity, meld with other efforts by federal, state and local government officials, business leaders, educators and students. By focusing on all the necessary ingredients to enhance education through technology, America can realize the benefits of the information age in the classroom and in so doing, prepare our children to compete and win in the next century.

6/27/96